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EXAMINER	
DAMIANO, ANNE L	

ART UNIT	PAPER NUMBER
2114	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/072,119	JAIN, SUDHANSHU
	Examiner	Art Unit
	Anne L Damiano	2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 6 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/19/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claim 28 is objected to because of the following informalities: Lines 2-3, "the multicast distribution trees" lacks antecedent basis. This is interpreted as saying, "the multicast list". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3 and 9-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Lindhorst-Ko. (6,725,401).

As in claim 1, Lindhorst-Ko discloses a method for propagating a fault notification in a network comprising:

Identifying possible points of failure (communications paths traversing the network) in a network (column 1: lines 15-19);

Forming indicia (path array) of each identified possible point of failure (column 3: lines 23-32, column 3: line 64-column 4: line 2, column 6: lines 43-49); (Each communication path has a path array identifying the components of the communication path.)

Propagating the indicia of the identified possible points of failure within the network (column 3: lines 53-60 and column 7: lines 8-36) (When a communication path is set up, the source node propagates set-up messages containing the path array data, within the network);

Storing the indicia of the identified possible points of failure in network nodes (column 5: lines 7-10); (The path arrays are stored within the node.) and

Determining whether a fault has occurred in the network and when a fault has occurred, propagating a fault notification by at least one of the network nodes that detects the fault to its neighboring network nodes (column 4: lines 18-37). (Failure notification being launched to into every upstream link means that at least the node that detected the fault propagated the fault notification to its neighboring network node.)

As in claim 2, Lindhorst-Ko discloses the method according to claim 1, wherein the network is a label-switching network (column 3: lines 50-52).

As in claim 3, Lindhorst-Ko discloses the method according to claim 2, wherein label switching is performed in accordance with MPLS (column 6: lines 23-25).

As in claim 9, Lindhorst-Ko discloses the method according to claim 1, said storing the indicia of the identified possible points of failure being performed by network nodes that would be affected by the corresponding point of failure (column 3: lines 11-22 and column 5: lines 7-10); (The path arrays are stored within the source node. The source node would be affected by the corresponding path failures, which are points of failure.)

As in claim 10, Lindhorst-Ko discloses the method according to claim 9, said network nodes that would be affected by the corresponding point of failure having set up a label-switched path that uses a resource identified by the corresponding point of failure (the resources traversed by each communication path-point of failure) (column 3: lines 11-22).

As in claim 11, Lindhorst-Ko discloses the method according to claim 1, further comprising recovering from a fault by at least one of the network nodes that receives a fault notification that corresponds to a point of failure that affects operation of the node (column 10: lines 18-37). (The fault notifications are received and data is re-routed to recover from that fault.)

As in claim 12, Lindhorst-Ko discloses the method according to claim 1, wherein the indicia (path array) includes a first field for identifying a component of the network (network

resource including a physical network node) and a second field for identifying a sub-component of the component identified in the first field (network resource including a logical connection between a pair of network nodes) (column 3: line 64-column 4: line 8).

As in claim 13, Lindhorst-Ko discloses the method according to claim 12, wherein the indicia includes a third field for identifying a network link coupled to the component identified in the first field (column 4: line 2-3).

As in claim 14, Lindhorst-Ko discloses the method according to claim 12, wherein the component of the network identified by the first field includes one of the nodes of the network (column 4: lines 2-4).

As in claim 15, Lindhorst-Ko discloses the method according to claim 14, wherein the second field includes a mask having a number of bits, each bit corresponding to a sub-element of the node identified by the first field (column 9: lines 32-39).

As in claim 16, Lindhorst-Ko discloses the method according to claim 13, wherein the third field identifies a logical network link that corresponds to multiple physical network links coupled to the component identified in the first field (column 4: line 2-8 and column 5: lines 53-55).

As in claim 17, Lindhorst-Ko discloses the method according to claim 12, wherein the fault notification includes the indicia corresponding to one of the points of failure corresponding to the fault (resource identifier contained in the failure notification messages) (column 4: lines 24-31 and column 5: lines 57-61).

As in claim 18, Lindhorst-Ko discloses the method according to claim 1, wherein the fault notification includes the indicia corresponding to at least one of the points of failure corresponding to the fault (resource identifier contained in the failure notification messages) (column 4: lines 24-31 and column 5: lines 57-61).

As in claim 19, Lindhorst-Ko discloses the method according to claim 18, wherein when said fault results in multiple points of failure, propagating fault notifications corresponding to each of the multiple points of failure (column 10: lines 1-17).

As in claim 20, Lindhorst-Ko discloses the method according to claim 1, further comprising propagating indicia of additional possible points of failure in response to changes in the network (column 3: lines 53-60, column 7: lines 8-36, column 9: lines 40-50 and column 10: lines 47-51). (When a communication path is set up, the source node propagates set-up messages containing the path array data, within the network. When a link becomes inoperable, another link becomes operable in its place and the link database is updated with the new information.)

As in claim 21, Lindhorst-Ko discloses the method according to claim 1, said propagating a fault notification comprising communicating the fault notification to a multicast group, the multicast group including network interfaces of the node that detects the fault to its neighbors (column 4: lines 18-37). (Failure notification being launched to into every upstream link means the fault notification is communicated or multicast to the group of upstream links.)

As in claim 22, Lindhorst-Ko discloses the method according to claim 21, further comprising propagating the fault notification from the neighboring nodes to each other node in the network (column 10: lines 1-17). (Propagating the link failure notification hop-by-hop around the affected ring is propagating from the neighboring nodes to each other node in the network.)

As in claim 23, Lindhorst-Ko discloses the method according to claim 22, said propagating the fault notification from the neighboring nodes being via multicast trees stored in label-swapping tables of each node in the network (column 10: lines 1-17).

As in claim 24, Lindhorst-Ko discloses the method according to claim 1, said forming being performed by network nodes associated with the corresponding possible point of failure (column 3: lines 23-32, column 3: line 64-column 4: line 2, column 6: lines 32-49); (The source node creates and maintains the path databases corresponding to each path, which are the possible points of failures. Each communication path has a path array identifying the components of the communication path.)

As in claim 25, Lindhorst-Ko discloses a system for propagating a fault notification in a network comprising a plurality of interconnected network nodes, each having stored indicia (path array) of identified possible points of failure in the network (communications paths traversing the network) (column 1: lines 15-19, column 3: lines 23-32, column 3: line 64-column 4: line 2, column 6: lines 43-49) (Each communication path has a path array identifying the components of the communication path.) and wherein, when a fault occurs in the network, at least one of the network nodes that detects the fault propagates a fault notification by to its neighboring network nodes, each neighboring node having a multicast distribution list for distributing the fault notification throughout the network (column 3: lines 26-35, column 3: line 64-column 4: line 8, column 4: lines 18-37 and column 10: lines 1-17). (The path database of the node includes information relating to the resources associated with each path. Failure notification being launched to into every upstream link means the fault notification is communicated or multicast to the group of upstream links with a distribution list of the network resources being stored in the path database each neighboring node.)

As in claim 26, Lindhorst-Ko discloses the system according to claim 25, wherein the network is a label-switching network (column 3: lines 50-52).

As in claim 27, Lindhorst-Ko discloses the system according to claim 26, wherein the fault notification is distributed via label-switched paths (column 3: lines 50-52 and column 6: lines 23-25).

As in claim 28, Lindhorst-Ko discloses the system according to claim 27, the label-switched paths being identified by fault information labels (FILs) included in the multicast distribution lists (column 4: lines 18-37). (Information indicative of a failed network resource is a fault notification label or description that is unique to the node.)

As in claim 29, Lindhorst-Ko discloses the system according to claim 28, the fault notification including the indicia corresponding to the fault (column 4: lines 18-23). (Information indicative of a failed network resource is a fault notification label or description that corresponds to the node.)

As in claim 30, Lindhorst-Ko discloses the system according to claim 29, wherein the indicia (path array) includes a first field for identifying a component of the network (network resource including a physical network node) and a second field for identifying a sub-component of the component identified in the first field (network resource including a logical connection between a pair of network nodes) (column 3: line 64-column 4: line 8).

As in claim 31, Lindhorst-Ko discloses The system according to claim 30, wherein the second field includes a mask having a number of bits, each bit corresponding to a sub-element of the node identified by the first field (column 9: lines 32-39).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindhorst-Ko as applied to claim 2 above.

Regarding claim 4, Lindhorst-Ko discloses the method for propagating a fault notification in a network above. Lindhorst-Ko also discloses failure notification messages being propagated around a ring in accordance with conventional Bi-directional Line Switched Ring (BLSR) alarm signaling techniques (column 10: lines 34-8). However, Lindhorst-Ko does not specifically disclose the specific routing protocol used to propagate the fault notifications.

It would have been obvious to a person skilled in the art at the time the invention was made to propagate the fault notification by an interior gateway protocol in the system taught by Lindhorst-Ko. It would have been obvious because Lindhorst-Ko discloses such propagation being in accordance with conventional techniques and Interior Gateway Protocol is a broad category of conventional routing protocols that support confined geographic areas, such as a Bi-directional Line Switched Ring. A person skilled in the art would have understood that Lindhorst-Ko intended for an Interior Gateway Protocol to implement the propagation step in the disclosed method.

Regarding claim 5, Lindhorst-Ko discloses the method for propagating a fault notification in a label switched network above. However, Lindhorst-Ko does not specifically disclose sending the fault notification by a label switched packet. It would have been obvious to a person skilled in the art at the time the invention was made to send the fault notification by a label switched packet. It would have been obvious because a label switched network transmits blocks of data in packets. A person skilled in the art would have understood that the fault notifications in Lindhorst-Ko's system were sent with label switched packets.

As in claim 6, Lindhorst-Ko discloses the fault notification label switched packet having a fault information label that distinguishes the fault notification from data traffic (column 4: lines 18-23 and column 8: lines 59-64). (The system allows the nodes to prioritize traffic flow meaning that more important fault notification messages must have a label of some sort to distinguish it from other network traffic (column 8: lines 59-64). Also, information indicative of a failed network resource can be interpreted as a fault notification label or description that distinguishes the fault notification from data traffic (column 4: lines 18-23).)

As in claim 7, Lindhorst-Ko discloses the method according to claim 6, wherein a substantially same FIL is sent with each fault notification regardless of which network node originates the fault notification (column 8: lines 59-64) (The system allows the nodes to prioritize traffic flow meaning that more important fault notification messages must have a label of some sort to distinguish it from other network traffic.)

As in claim 8, Lindhorst-Ko discloses the method according to claim 6, wherein each network node originates fault notifications having a FIL that is unique to the node (column 4: lines 18-23). (Information indicative of a failed network resource is a fault notification label or description that is unique to the node.)

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne L Damiano whose telephone number is (703) 305-8010. After approximately October 15th, the examiner can be reached at (571) 272-3658. The examiner can normally be reached on M-F 9-6:30 first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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